



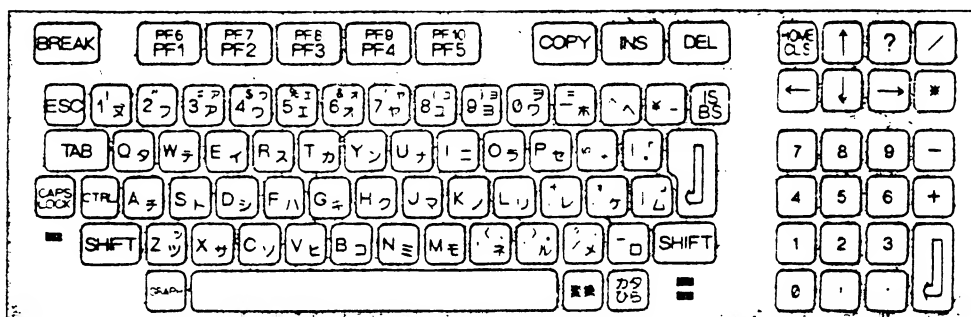
S1 REVIEW

As promised in the last issue, I have written an "in-depth" review of the S1 micro. The S1 has been released for sale in Japan and several of the machines have already found their way to Australia. PUN has managed to acquire one and has put the unit to the test. A benchmark comparison of the S1 is presented as a separate article. A number of people have been treated to a quick look at PUN's S1 and all have gone away impressed.

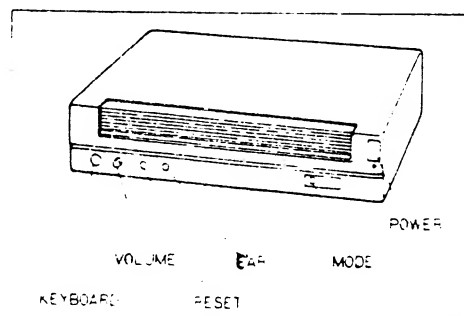
The Hardware

The S1 is a very compact unit and appears quite small alongside the PEACH. It is supplied as a CPU box with a detachable keyboard (which plugs into the front panel of the CPU box). The keyboard is well arranged and has a positive feel. There are several differences from the PEACH keyboard with the inclusion of COPY, INSERT and DELETE keys and the addition of a comma key in the numeric keypad. The BREAK key is protected by a raised molding and a recess is provided above the PF keys for the insertion of a label strip for the 5 programmable function keys (10 using the shift key).

The keyboard is attached to the main unit by a spiral cord and could quite easily be sat on your lap. I preferred to use the keyboard on the desk in front of the CPU unit, but this is purely a matter of convenience. The keyboard layout is shown below.



The CPU unit is surprisingly compact. The front panel is two tone coloured, with the inbuilt speaker mounted behind the grey coloured bezel. The keyboard connector speaker volume control, reset and power buttons are accessible from the front panel. An earphone socket and system mode switch are also mounted on the front panel. (The System mode button switches the operating system from S1 mode to PEACH emulation mode).



The rear panel provides connection points for a B/W monitor, a cassette system, a CENTRONICS parallel printer and a mouse. Removable metal dust covers are provided for access to expansion cards and an RS232C connector (optional). Noticeably absent are the Lightpen and RS232 connectors provided on the PEACH.

Inside the box: Is essentially a single large pcb covered in a mass of different logic chips. The Japanese brochures stress the LSI technology used in the component manufacture and it is very apparent that the superb operation of the S1 owes a lot to LSI technology. Obviously the cost of developing LSI chips for a specific micro indicates that Hitachi expect to sell the S1 in quantity. (Perhaps to the lucrative US market - the all metal casing of the S1 is a pointer to an attempt to observe FCC regulations - alas the downfall of the PEACH). To the right of the unit is the switched mode power supply.

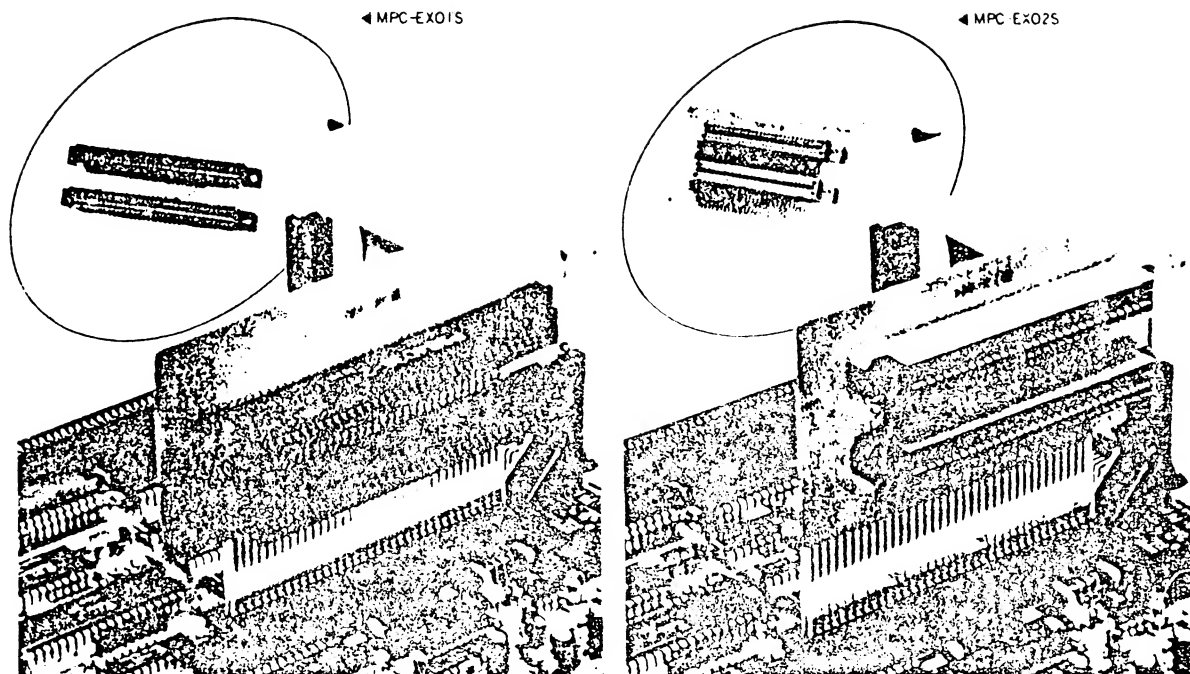
Three expansion connectors are visible on the main circuit board. The small connector adjacent to the power supply is a video interface card. This card permits the S1 to control an Hitachi video tape deck and to superimpose the video output of the VTR with the S1 video output. This facility offers enormous potential from simple sub-titling of home videos to very sophisticated interactive flight simulators etc. There is some indication in the Japanese brochures that Hitachi will be offering a video disc player suitable for connection to this interface.

Two other expansion slots are provided. These can be used as is, or an intermediate card used to provide two expansion slots from each of the original slots. This results in a maximum of 4 expansion slots. The pinouts for these expansion slots is shown adjacent.

Two different styles of intermediate cards are available. One brings out only the PEACH Level 3 pin outs and is for use with PEACH peripherals (such as 1802 Disk Controller cards, etc.). The other provides all S1 pinouts and is for use with S1 memory boards and peripherals. The two different styles of intermediate cards are shown in the photograph below.

S1 EXPANSION									
+5V	1	2	GND						
(1) D	3	4	D1	(1) D1					
"	5	6	D5	"					
"	7	8	D6	"					
(1) D	9	10	D7	"					
"	A1	11	A1	(1) D1					
"	A2	12	A2	"					
"	A3	13	A3	"					
"	A4	14	A4	"					
"	A5	15	A5	"					
"	A6	16	A6	"					
"	A7	17	A7	"					
"	A8	18	A8	"					
"	A9	19	A9	"					
"	A10	20	A10	"					
"	A11	21	A11	"					
"	A12	22	A12	"					
"	A13	23	A13	"					
"	A14	24	A14	"					
ROUT	25	26	BS	(OUT)					
INFORM	27	28	EXROM-KILL(OUT)						
IN P W IN	29	30	EXT 0						
OUT P W OUT	31	32	VMA-OUT(OUT)						
OUT P W OUT	33	34	Q(OUT)						
OUT P W OUT	35	36	NMHI 0						
OUT P W OUT	37	38	FIRQ 0						
OUT P W OUT	39	40	VMACTRL(0)						
OUT P W OUT	41	42	TMQ2OUT						
OUT P W OUT	43	44	SOUND IN(0)						
OUT P W OUT	45	46	GND						
OUT P W OUT	47	48	GND						
OUT P W OUT	49	50	EXT 0						
OUT P W OUT	51	52	EXT 0						
OUT P W OUT	53	54	EXT 0						
OUT P W OUT	55	56	EXT 0						
OUT P W OUT	57	58	EXT 0						
OUT P W OUT	59	60	EXT 0						
OUT P W OUT	61	62	EXT 0						
OUT P W OUT	63	64	EXT 0						
OUT P W OUT	65	66	EXT 0						
OUT P W OUT	67	68	EXT 0						
OUT P W OUT	69	70	EXT 0						
OUT P W OUT	71	72	EXT 0						
OUT P W OUT	73	74	EXT 0						
OUT P W OUT	75	76	EXT 0						
OUT P W OUT	77	78	EXT 0						
OUT P W OUT	79	80	EXT 0						
OUT P W OUT	81	82	EXT 0						
OUT P W OUT	83	84	EXT 0						
OUT P W OUT	85	86	EXT 0						
OUT P W OUT	87	88	EXT 0						
OUT P W OUT	89	90	EXT 0						
OUT P W OUT	91	92	EXT 0						
OUT P W OUT	93	94	EXT 0						
OUT P W OUT	95	96	EXT 0						
OUT P W OUT	97	98	EXT 0						
OUT P W OUT	99	100	EXT 0						





S1 Intermediate Card

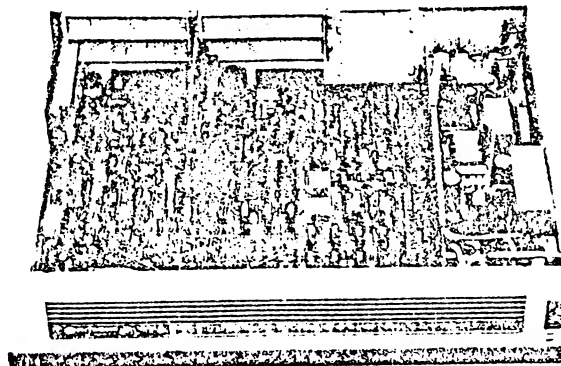
Level 3 Intermediate Card

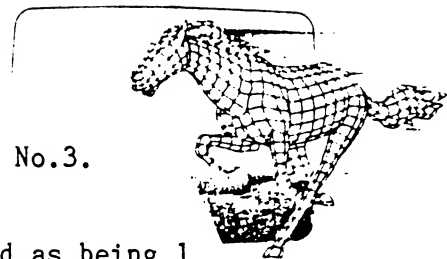
All the Level 3 peripherals are compatible with the S1 when using the Level 3 type intermediate cards. Level 3 peripherals can be connected directly into the S1 ports, however misalignment of the inserted card could prove disastrous.

Hardware Features:

The S1 utilizes a 2 MHz version of the 6809 chip and has an obvious potential speed improvement.

The faster clock together with a much improved ROM Basic makes the S1's performance very impressive. In the Level 3 emulation mode the clock rate is reduced to 1 MHz. It is possible to revert this back to 2 MHz to improve the speed of programs running in the PEACH mode, but care is required when accessing peripheral devices, such as disk drives, which are incapable of 2 MHz operation.





The addressing range of the S1 has been widely publicised as being 1 Megabyte. This is not strictly correct. The 6809 processor is only capable of directly addressing 64K bytes. The addressing capability has been extended by the addition of a memory management circuit. This provides an additional four address lines to extend the address bus to twenty lines (hence the 1 Mb). The S1 has 16 memory map registers each of which contains the four most significant address lines of the address bus.

The 64K page addressable by the 6809 chip has been divided into 16 blocks of 4K. Using the memory map registers it is possible to map sixteen 4K blocks of memory, from anywhere in the 1 Megabyte address range, into the current 64K memory page of the 6809 processor. To change the memory map it is only necessary to change the 4 bit value held in any/all of the memory map registers. Using this facility it is possible to locate the video ram almost anywhere within the 64K address page. This will obviously be of vital interest to existing and potential FLEX users who will be able to run all standard FLEX software without need for alteration. It also raises the possibility of emulating the memory map of other 6809 based microcomputers and gaining access to a vast range of software. The extent to which this potential can be realised will depend largely on the support Hitachi (/Nissei??) gives to developing emulation modules to reconfigure I/O addressing to suit different microcomputers.

It appears that the S1 design has been directed at three of the main drawbacks with the PEACH - the location of video RAM, the restricted memory capacity and the colour bleeding.

The screen resolution is nominally 640x200, however it is possible to achieve 640x400 resolution under certain conditions; use of a single colour only. The main area of improvement in the screen display is the use of an image generator and three independant graphics screens (one for each colour - RED, GREEN, BLUE).

A further hardware advance is the baud rate for the cassette port. This can be set for 300, 600, 1200 or 2400 baud; this significantly affects cassette save and load operations. To achieve this improvement the base frequencies used in the FSK (frequency shift keying) technique are changed and the resulting cassettes are incompatible with the PEACH.

Passing mention is made in brochures of a 68000 and Z80 interface for the S1. This appears to be only wishful thinking at the moment.

The Software

There is no software specifically available for the S1 at this time, although the OS-9 operating system is supposedly available in Japan. The memory management of the S1 would suit OS-9 very well and readily support a multi-tasking, multi-user situation. It is my intention to take advantage of OS-9 as soon as it becomes available in Japan.

Whilst there is no "off the shelf" software, the S1 does support a number of very powerful commands. A whole range of printer specific commands are provided (LCOPY, LFILES, LLIST, LPRINT and LPRINT USING) to direct output to the printer port. The WHILE - WEND construct has been implemented. A number of graphics commands are provided with additional features, e.g. it is possible to PAINT with a pattern as well as a plain colour; the LINE command permits definition of the type of line (dotted, dashed etc.).

Some very powerful new graphics commands available are briefly described below:



- CIRCLE - a very fast routine, see benchmarks
- CONNECT - an extension of the LINE command
- SYMBOL - similar to the symbol command provided in GRAPHIC EXPANDER, e.g. define character shape, orientation and size.
- WINDOW, VIEW - provided access to the new world of windows.
- PALETTE - permits a large range of colours to be used.
- GET, PUT - sections of the screen can be moved into and out of memory.
- IMAGE, IG\$ - up to 256 alternative character patterns can be saved and manipulated using all the character string commands.
- GCURSOR - supports a small cross - hair which can be used for menu/icon selection.

And a few other commands:

- MTRIG, ON MTRIG, MREAD - mouse commands
- STRIG, ON STRIG, STICK - joystick commands
- SOUND, PLAY - allows sound and music to be generated by the PSG. Up to 6 channels can be operated simultaneously using the PLAY command.
- INTERVAL, ON INTERVAL - defines a timed interrupt and directs program control to an interrupt handler subroutine provided by the user (in BASIC).

There are other commands which support more hardware related programming requirements, e.g. DEF MAP which permits program access to the memory map arrangement.

A very good demonstration disk /cassette is available with the S1, which superbly illustrates the capabilities of the machine. Even this demo, which is quite extensive, fails to fully explore the potential of the machine. Things happen so fast in BASIC that machine language could easily be largely neglected. Several people who have seen the demonstration thought it was done in machine code and were staggered when shown that it was all done by BASIC.

Very simply put, and I quote an impressed PEACH owner, "This machine is what I thought I was getting when I bought my PEACH".

PEACH Emulation

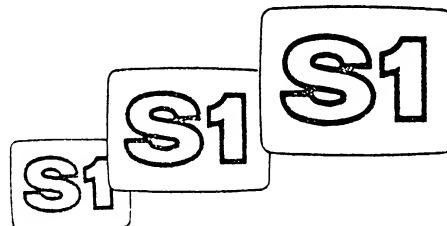
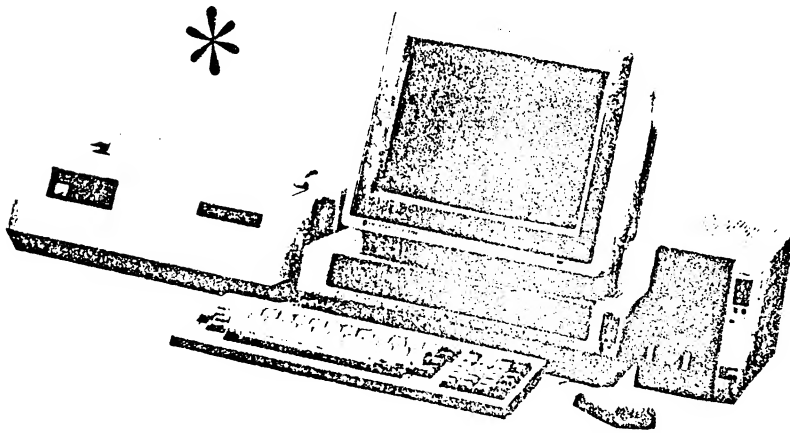
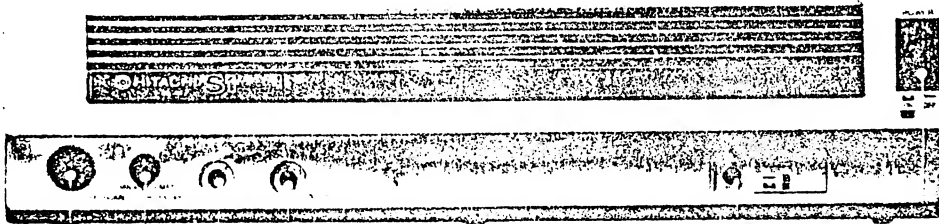
Ah yes. Not to be outdone the Peach is still with us. By now you have probably invested a considerable sum on software, not to mention the time spent writing your own programs. All programs written purely in PEACH BASIC will work on the S1. Most machine code programs will also work. For example the following games / packages are running on my S1 (without alteration):

HIWRITER, MICRO LEDGER, HIDATA, PEACH PANIC, GALAXY FLY, GRAPHIC EXPANDER, DBCMDS, ETC.

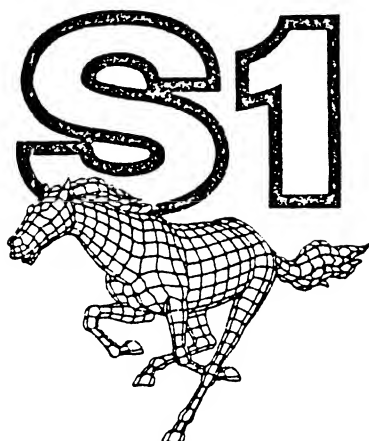
Some programs have failed to operate correctly. One specific example is the Lady Bug game. The problem with this game is that it actually determines what actions are permitted by reading the screen colours. The screen arrangement on the S1 is different and causes the Lady Bug program to malfunction. It would appear however that the large majority of software on the PEACH will also work on the S1 in PEACH emulation mode.

One very annoying feature of the PEACH emulation mode is the cursor position. The cursor is shifted one space to the right. This makes it very difficult to correct mis typed commands as through habit I used the cursor like I would on the PEACH and found I changed the wrong characters. This problem should be correctable by adjusting the registers controlling the CRTC. At this time I have not bothered as I bought the unit to be used as an S1. When time permits I will investigate this further. Should you have any specific questions please write and I will reply in the readers letters column.

By the way - I very recently heard that a \$500 changeover from PEACH to S1 is not yet out of the question!!!!



BENCHMARK



MB-S1/10 MB-S1/20

In an attempt to quantify the capabilities of the new S1 micro I have decided to put the machine to the test. I had initially intended to write a few simple routines and compare the S1 against the PEACH running the same routines. On second thoughts I decided that this would not give the machine the chance to prove itself against open competition. The problem was to find a means of comparing the S1 against other micros without having access to a whole host of different machines. The answer proved to be very simple. I will simply run the benchmarks published in the February, 1984 issue of Australian Personal Computer magazine. For the purposes of comparison I have extracted a few of the more impressive performances from the comparison table published in the same issue of APC.

The benchmarks are listed below:

```
100 REM BENCHMARK 1
105 TIME$="00:00:00"
110 PRINT "S"
120 FOR K=1 TO 1000
130 NEXT K
135 PRINT TIME
140 PRINT "E"
150 END
```

```
100 REM BENCHMARK 3
105 TIME$="00:00:00"
110 PRINT "S"
120 K=0
130 K=K+1
140 A=K/K*K+K-K
150 IF K<1000 THEN 130
155 PRINT TIME
160 PRINT "E"
150 END
```

```
100 REM BENCHMARK 5
105 TIME$="00:00:00"
110 PRINT "S"
120 K=0
130 K=K+1
140 A=K/2*3+4-5
150 GOSUB 200
160 IF K<1000 THEN 130
170 PRINT TIME
180 PRINT "E"
190 END
200 RETURN
```

```
100 REM BENCHMARK 2
105 TIME$="00:00:00"
110 PRINT "S"
120 K=0
130 K=K+1
140 IF K<1000 THEN 130
150 PRINT TIME
160 PRINT "E"
170 END
```

```
100 REM BENCHMARK 4
105 TIME$="00:00:00"
110 PRINT "S"
120 K=0
130 K=K+1
140 A=K/2*3+5-5
140 IF K<1000 THEN 130
150 PRINT TIME
160 PRINT "E"
170 END
```

```
100 REM BENCHMARK 6
105 TIME$="00:00:00"
110 PRINT "S"
120 K=0
130 DIM M(5)
140 K=K+1
150 A=K/2*3+4-5
160 GOSUB 230
170 FOR L=1 TO 5
180 NEXT L
190 IF K<1000 THEN 140
200 PRINT TIME
210 PRINT "E"
220 END
230 RETURN
```

```

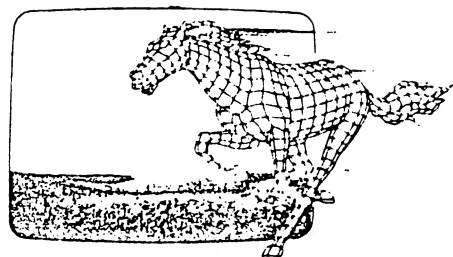
100 REM BENCHMARK 7
105 TIME$="00:00:00"
110 PRINT "S"
120 K=0
130 DIM M(5)
140 K=K+1
150 A=K/2*3+4-5
160 GOSUB 240
170 FOR L=1 TO 5
180 M(L)=A
190 NEXT L
200 IF K<1000 THEN 140
210 PRINT TIME
220 PRINT "E"
230 END
240 RETURN

```

```

100 REM BENCH MARK 8
105 TIME$="00:00:00"
110 PRINT "S"
120 K=0
130 K=K+1
140 A=K^2
150 B=LOG(K)
160 C=SIN(K)
170 IF K<1000 THEN 130
180 PRINT TIME
190 PRINT "E"
200 END

```



The purpose of a benchmark is to gauge the relative speed/performance of a complete machine (i.e. hardware and software) at a simple programming task. The benchmark programs used by APC contain no disk access or graphics functions because of the difficulty of writing even a simple program which is compatible with all micros to be tested. I have tested the S1 in its natural (S1 mode) rather than its Peach emulation mode. I have also repeated the tests on my PEACH to verify the published results in the APC comparison. The results are shown in the table below:

: Benchmark: S1 : PEACH : Olivetti: TI : BBC : Hitachi : IBM :							
: : : M20 : PROF. : : Success : PC :							
1	1.0	1.9	1.3	1.0	1.0	1.5	1.5
2	4.0	11.0	4.0	4.2	3.1	5.0	5.2
3	11.0	26.0	8.1	9.3	8.2	10.5	12.1
4	9.0	26.0	8.5	9.7	8.7	10.5	12.6
5	11.0	29.0	9.6	10.5	9.1	12.5	13.6
6	20.0	49.0	17.4	19.0	13.9	23.5	23.5
7	34.0	80.0	26.7	29.5	21.4	36.0	37.4
8	18.0	105.0	16.0	31.0	51.0	35.0	35.0
Average	13.5	41.0	11.5	14.3	14.6	16.8	17.6

The results are quite stunning aren't they! the Olivetti, the TI professional, and BBC Micros were the three fastest machines listed in the APC benchmark summary (p.59 February, 1984 issue). The Hitachi Success and the IBM PC are shown for interest. It is worth noting that the Peach, S1 and BBC micros are 8 bit machines.

The PEACH and even more so, the S1, excel at graphics and it did appear to me that any benchmark of these machines should, for completeness, include a test of this capability. The following graphics benchmarks were used by the Japanese to compare the S1 against the more popular Japanese micros. I have included the listings in the event that you want to carry out your own tests. It was necessary to modify the command syntax in a number of lines so that the PEACH would execute the commands. (circles on the Peach were drawn using the GRAPHIC EXPANDER utilities)

```
100 'GRAPHIC LINE
110 CLS 2
120 TIME$="00:00:00"
130 SCREEN 0,0
140 FOR N=1 TO 10
150 GOSUB 200
160 CLS 2
170 NEXT N
180 PRINT TIME$
190 END
200 ' LINE SUB
210 FOR X=0 TO 639
220 LINE(X,0)-(639-X,199),7
230 NEXT X
240 RETURN
```

```
100 'GRAPHIC CIRCLE
110 CLS 2
120 TIME$="00:00:00"
130 SCREEN 0,0
140 GOSUB 170
150 PRINT TIME$
160 END
170 'CIRCLE SUB
180 FOR X=500 TO 100 STEP -2
190 Y=X/5
200 CIRCLE(X,Y),Y
210 NEXT X
220 RETURN
```

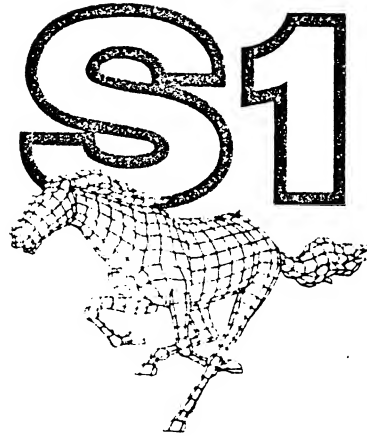
```
100 'SCREEN PAINT
110 CLS 2
120 TIME$="00:00:00"
130 SCREEN 0,0
140 FOR N=1 TO 10
150 GOSUB 190
160 NEXT N
170 PRINT TIME$
180 END
190 'PAINT SUB
200 FOR C=1 TO 7
210 PAINT(0,0),C
220 NEXT C
230 RETURN
```

```
100 'LISSAJOUS
110 CLS 2
120 TIME$="00:00:00"
130 SCREEN 0,0
140 W1=100:A=100:PAI=3.14159
150 FOR I=0 TO 3
160 READ W
170 W2=W*W1
180 FOR E2=0 TO PAI STEP PAI/4
190 GOSUB 270
200 CLS 2
210 NEXT E2
220 CLS 2
230 NEXT I
240 PRINT TIME$
250 DATA 1,1.5,2,3
260 END
270 'LISSAJOUS SUB
280 FOR T=-4.5 TO 4.5 STEP .02
290 X=A*SIN(W1*T*PAI/180)+320
300 Y=A*SIN(W2*T*PAI/180+E2)+100
310 PSET(X,Y),7
320 NEXT T
330 RETURN
```

```

100 'GRAPHIC PATTERN
110 CLS 2
120 SCREEN 0,0
130 DIM X(20),Y(20):PAI=3.14159
140 TIMES$="00:00:00"
150 FOR N=1 TO 10
160 FOR K=2 TO 10
170 C=0
180 FOR I=0 TO 2*PAI STEP PAI/K
190 X(C)=INT((SIN(I)+1)*200)+100
200 Y(C)=INT((COS(I)+1)*100)
210 C=C+1
220 NEXT I
230 C=C-1
240 FOR A=0 TO C
250 FOR B=A TO C
260 LINE(X(A),Y(A))-(X(B),Y(B)),N MOD 7
270 NEXT B
280 NEXT A
290 NEXT K
300 NEXT N
310 PRINT TIMES$
320 END

```

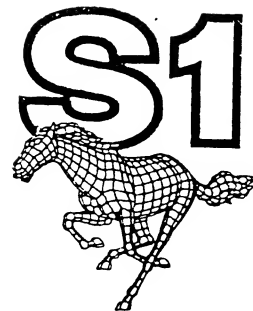


The following table shows the results obtained as well as an extract from the Japanese benchtest:

GRAPHICS BENCHTEST

: Benchmark: S1 : PEACH : FM-7 : PC-88 : PC-9801:PC-9801F:						
: : : : : Mk II : (5MHz) : (8MHz) :						
: Gr. Line : 2:34 : 12:35 : 13:27 : 27:14 : 01:26 : 00:56 :						
: Gr. Circ.: 0:08 : 1:26 : 00:28 : 02:05 : 00:38 : 00:13 :						
: Screen Pt: 0:21 : 39:05 : 03:50 : 44:05 : 14:24 : 00:40 :						
: Lissajous: 5:16 : 18:19 : 05:54 : 19:09 : 05:58 : 03:35 :						
: Gr."Fred": 4:04 : 13:49 : 08:51 : 22:52 : 02:21 : 01:49 :						
: Total : : : : : : :						
: Time : 12:23 : 85:14 : 40:57 : 139:43 : 37:15 : 10:02 :						
: min:sec : : : : : : :						

These tests by no means stretch the capacity of the S1 as it is capable of many functions that the PEACH is unable to do. Hence a benchmark comparison is not possible.



HITACHI-S1 QUESTIONS FROM SA USERS OF HITACHI MB-6890

****** Why should we buy an S1 ? ******

No doubt there will be a different answer for each user who buys an S1. Perhaps it could be the speed of the S1, or the superior range of commands. For others it will be the temptation of a maximum BASIC program size of 132K, for others the ability to CHAIN programs together. The potential of interactive video control is of great interest to me personally.

Are the cards we have bought for the 6890 ie Diskette controller, clock, Z-80, Multifunction boards going to be able to be usable? Are there any limitations?

Most of the cards that can be plugged into the MB-6890 will function without difficulty when used in the S1. I have installed the Hitachi 1802 disk controller card, the Rob's Multicard, and a Centronics Printer card. These have all worked without any apparent difficulty. The MP-1600 card will not function and the Rob's CP/M card works on some systems and not others. I am told that the problem with the CP/M card is a voltage drop condition caused by the thin tracks used on the expansion port intermediate cards. A set of Australian designed intermediate cards has been designed to overcome this problem.

Do our existing diskette drives work on the S1? Are there any limitations?

I have only Hitachi disk drives and these work without any difficulty. To overcome the cursor shift problem described in the last issue it is necessary to change a chip switch on the 1802 controller card. This corrects the cursor problem in all but Procalc and Flex.

Will our existing video monitors plug into the S1?

Once again I have an Hitachi monitor and this simply plugs in and functions exactly as it did on the MB-6890. I don't anticipate any difficulty connecting other monitors. A B&W outlet is provided as on the MB-6890.

What software won't run on the S1 that will on the 6890?

What software will run on the S1 that will on the 6890?

Most software will run under PEACH emulation mode. Several games initially would not work but these have since been modified. The problem was found to be in the way the color register &HFFD8 is utilised. Providing the program accesses the machine through BASIC, it should work ok. BASIC programs can be transferred to the S1 by saving them in ASCII format in MB-6890 emulation mode and then loading them into the S1. Some minor modifications will be required to make the programs function correctly. There are differences in a number of common commands such as CLS and SCREEN, these are not serious however. Machine Language programs are largely incompatible although it depends on the reliance of the code on ROM routines. Hiwriter will not function in S1 mode.

Does it have interfaces for the following as standard:

**Light pen, RS-232 serial, Centronics printer, Cassette
Color monitor, Monochrome monitor?**

Centronics printer, cassette, Colour and Monochrome Monitor ports are provided. An RS-232 outlet can be added for a minimum cost. This is in the form of a DB25 connector and a short piece of cable to plug into a socket on the CPU board. A light pen circuit has not been provided.

Does the S1 have more sheilding to reduce interference on a normal TV?

Does it run on 240v or does it still need an external 240v/110v transformer?

The S1 still relies on a 110V transformer, although models to be released in February, 1985 are said to have a 110/220v switchable power supply. The power supply appears to be well shielded and certainly causes no interference on my TV. Neither did the MB-6890! A perplexing problem!

What documentation is guaranteed to come with the S1 at sale time?

What software is guaranteed to come with the S1 at sale time?

There are two manuals supplied with the Japanese system. A system manual and a BASIC manual. It is anticipated that, initially, Jingleish manuals will be supplied but, according to the importers, these will be replaced with full English versions free of charge when they are available. I am not aware of any packaged software being supplied, by dealers, with the S1.

What are it's physical dimensions?

CPU - 390x97x336, Keyboard - 390x42x177

Does it have additional interfaces? i.e. Joystick port.

Provision is made on the main CPU board for an additional PIA chip. Connectors are available on the main board at several points. The main additional interface provided is the Video Superimpose circuit.

What are the processors used and there speed?

The 6809E processor is used and a 2Mhz clock cycle is used. This can be selected in the Peach emulation mode by poking the appropriate register, hence software can be made to run at twice the speed.

What is the maximum usable RAM and ROM sizes?

The maximum usable RAM is 512K. This is not all availbale for BASIC programs as the maximum sized BASIC program is 132K!

Does it support FLEX, OS-9 Hitachi 32K SD, 40K SD, DD DOS?

FLEX and OS-9 are available for the S1 in Japan. I will be bringing these back with me from my trip to Tokyo in October. All the Hitachi DOS's work under MB-6890 emulation mode.

Interviewer: Can you give us some background on your new company and its relationship to Hitachi Ltd?

Phillip: ILC Systems has a share capital of \$3 million and paid up shares of \$600,000. One of the major share holders is an \$150 million advertising company. ILC Systems has negotiated the Distributorship rights for Hitachi Personal Computers in Australia. Purchases from Hitachi in Japan will be sourced through Nissei Sangyo although responsibility for sales and customer support will be ILC Systems concern.

ILC Systems is currently negotiating the purchase of UK based Software House. This outlet will be utilized for distribution of Australian sourced software to the Hitachi UK and USA markets.

Interviewer: There have been a lot of rumours concerning the release of the Hitachi S1 micro, particularly to do with a trade-in offer to existing owners of the Hitachi MB6890 (otherwise known as the PEACH). Can you give us an indication of the price and any trade-in offers for the S1 micro?

Phillip: The pricing of the S1 CPU has been kept as competitive as possible, with a tax inclusive price of \$895. This price is firm, although subject to any major variation in the exchange rate between Japanese Yen and the Australian Dollar. A trade-in offer will apply from September through November, 1984. It will work as follows..... present one MB6890 CPU with 16K RAM card and \$600 to an authorized dealer and you will receive an Hitachi S1 CPU in return. Fifty units have been ordered and these will arrive mid to late September.

The first shipment will have the original JIS keyboard (with Japanese and English characters on the keytops), and subsequent deliveries will be supplied with standard ASCII keyboards. From February, 1985 ILC Systems expects to receive supplies of S1s produced for the UK and US markets. These will have ASCII keyboards/character sets and English Documentation. A selectable 110/220v switched mode power supply is also likely.

Interviewer: Ahh.....Documentation! What work will be done on the Japanese manuals for Australian users?

Phillip: Translation of the Japanese Manuals to English has been organised and will include a System Manual, a BASIC reference manual, and a Disk Basic Manual. There is a total of approximately 500 pages. Initially it may be necessary to publish a limited number of these manuals in English form so that advance purchasers of the S1 will have some sort of documentation.

Negotiations will be undertaken with one or more local users to anglicize the manuals and perhaps produce a first time users manual. ILC Systems is looking to the Peach User Groups for assistance where possible and the advent of such an advanced micro as the S1 is an opportunity for us all to be rewarded for whatever enterprises we undertake. ILC Systems is prepared to negotiate payment to both individuals and user groups for any assistance given.

Interviewer: What warranty will apply to the S1?

Phillip: A twelve month warranty will be given and an extended service warranty will be offered beyond the initial twelve month period. It is expected that the extended service warranty will cost about \$56 per annum and will provide for on-site servicing of faulty equipment within major metropolitan areas (such as Sydney).

The servicing agent will be Hills-Telefix, a widely known and experienced Television and Microcomputer repair organisation.

It is anticipated that existing MB6890 owners will also be able to have there micros serviced by Hills-Telefix, although negotiations for this arrangement remain the responsibility of Nissei Sangyo to confirm.

Interviewer: What will be the marketing strategy of ILC Systems? Can we expect a better performance in customer support than we have received from the previous distributors of Hitachi Personal Computers?

Phillip: I believe that the potential exists for better relations between ILC Systems and users in general. It must be appreciated that an organisation must be profitable to remain in business. The amount of customer support that can be given is thus a function of the volume of sales. Every effort will be given to attaining a high standard of customer support and I believe that the correct actions have already been initiated for this to happen. My attendance at this User Group and the open manner in which I have answered questions should be some indication of my own commitment in this regard.

Interviewer: In the past, both Delta and Nissei Sangyo have failed to satisfy users with their support for the MB6890. Even Hitachi Ltd in Japan was approached for assistance and gave every appearance of abandoning users to their own devices. Can you as a former senior executive at Nissei Sangyo give us some insight as to why Hitachi have reacted in this manner?

Phillip: It is difficult to appreciate the Japanese approach to business. Perhaps I can present a few statistics as a partial justification of their actions. Hitachi Ltd is the second largest computer company in the world. It supplies 40% of all the IBM compatible equipment in the world and Hitachi's largest single customer is IBM. Despite these impressive statistics Hitachi only exports 27% of its output. The Australian market is totally insignificant in real terms and it was only through persuasion that the MB6890 was ever brought to Australia.

The other main contributor to the Hitachi outlook lies in the company structure. Hitachi is one of the few Japanese companies that retains the traditional Japanese style of management. It is not necessary for Hitachi executives to have a knowledge of the English language to be successful and to my knowledge there are only three senior Hitachi executives in the Pacific region with some English ability. This is in stark contrast to other Japanese companies which have a much better appreciation of the western way of business. Hitachi is slowly beginning to appreciate western business methods and some improvement will be seen in the future.

Interviewer: Have you decided which dealers will be selling the SI micro?

Phillip: At the moment, the existing Hitachi dealers will be offered the SL. Dealers who do not clear at least 10-15 units per month will be dropped, as will dealers who fail to provide adequate customer support. It is intended that there will ultimately be 42 dealers Australia wide and sometime next year ILC Systems will probably commence operation of a chain of franchise stores.

Interviewer: Will ILC Systems be distributing Hitachi peripherals and other micros?

Phillip: It is planned to offer a wide range of peripherals both from Hitachi and other sources. We plan to bring out a Hitachi 16 bit micro called BL6EX (to replace the SUCCESS). Also IBM compatible PC and several "el cheapo" micros of the throw away type.

Interviewer: Some rumours are spreading that a 68000 card is in the offing for the SI. Will this or the MP1600 card be made available?

Phillip: The MPL600 card is unlikely to be made available, and there is very little hope of a 68000 card being supplied either.

Interviewer: It is said that Rob's Computer Centre have completed a hard disk drive unit for connection to the PEACH. Will this unit work on the SI in the PEACH emulation mode, or more importantly, the SI mode?

Phillip: I don't know.

Interviewer: Mr Cook, thanks for coming along. I am sure that the club members here and readers of PUN will appreciate finding out your plans concerning the SI. Is there a chance that you will talk to us again in a few months time?

Phillip: I look forward to coming back again as it is my intention to make contact with all the User groups on a regular basis.

<<<<<<<<<<< THE END >>>>>>>>>>>

FOR SALE CLASSIFIEDS:

Hitachi Twin SSSD Drives

These twin drives have been well cared for and together with DOS, controller card and 110V transformer are for sale at \$500. Interested parties should contact Mr Bob Clampett, 45 Gillies Crescent, Beacon Hill, NSW 2100 or phone (02) 98 7547.

Set of MPI SSSD Drives

In excellent condition, one set of two SSSD MPI Floppy Disk Drives, complete with cabling and controller card. Ideal for owner of cassette based system. **\$500 or nearest offer.** Contact David M Ochtomann, 14 Meyers Cres., Cooranbong NSW 2265 or phone (049) 77 1095.

SHOPPING TOUR

of

JAPAN

The editor of PUN is going to JAPAN !!!

He will of course be buying many things for PUN and he would like to offer all subscribers of PUN the opportunity to buy direct and save.

He will depart 6th October, 1984 and return 22nd October, 1984. He will bring back any item that you can specifically identify by name, model and part number, including cameras and stereo equipment, although he is primarily concerned with buying copmuter equipment.

To give you some ideas the following is a suggested shopping list:

ITEM AUST.	EST. PRICE in
S1 CPU & Keyboard	A\$ 800.00
MPC - RA64S 64K RAM cards (slots for another 64K)	A\$ 150.00
New Design MP-3560 5 1/4" Dual DSDD Drives	A\$ 960.00
C14-2170 14" Hi-Res Col. Monitor	A\$1000.00
MP-3375 3" Dual SSSD Drives	A\$ 800.00
MP-1870 Single card drive controller (suit MP-3560)	A\$ 100.00
MP-3710 Mouse	A\$ 170.00
S1 Intermediate expansion cards (suggest min of 2 per syst.)	A\$ 25.00
L3 Intermediate expansion cards (suggest min of 2 per syst.)	A\$ 25.00
MP-1600 MS DOS card for the PEACH	A\$ 460.00
MP-9718 16K RAM bank switched	A\$ 135.00
MP-1802A 5 1/4" Disk Controller	A\$ 100.00
MP-1810 Line Printer Card (drives second printer)	A\$ 210.00
MP-1895 PIA card	A\$ 240.00
FLEX for S1	A\$ 300.00
FLEX utilities	A\$ 150.00

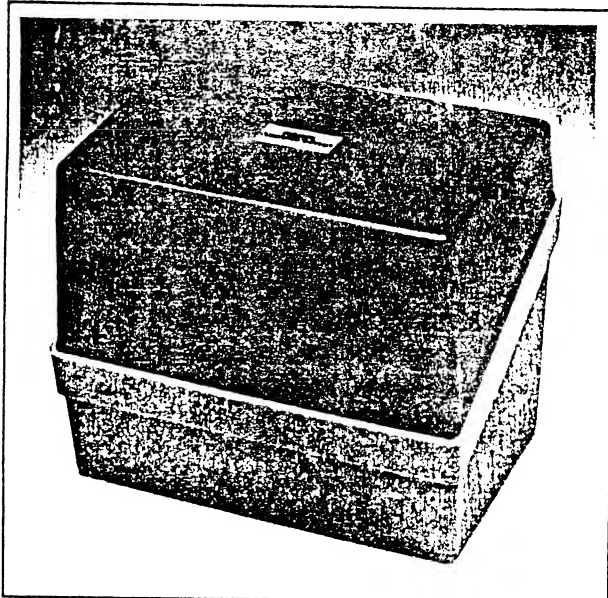
The above prices are based on known prices in Japan, an allowance for a reasonable discount for bulk purchases, an exchange rate of A\$1 per 200 \, a purchasing commission, plus import duty, sales tax, and freight. Any variation in these costs will result in a variation in cost price to you.

To order any of the above items, please forward a list, including any alternatives (should an item be unobtainable), plus a bank cheque for 50% of the price (as estimated above). On my return I will notify you of the actual cost price and you will be required to forward the balance outstanding prior to my despatching the equipment. Please note that the courier cost in Australia is an extra to the above prices as this will depend on what you purchase and your location in Australia.

All care will be taken to ensure that the equipment you receive is in working order but no responsibility will be accepted. Any claims for warranty will rest with the manufacturers in Japan. Hills Telefix will be the authorised service agents for Hitachi equipment sold in Australia and you may, if necessary, be able to have repairs performed by them.

THE CLOSING DATE FOR ORDERS IS 1ST OCTOBER, 1984. !

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